

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A radiation detector for detecting radiation ~~[[8]]~~ according to a predefined spectral sensitivity distribution ~~[[9]]~~ that exhibits a maximum at a predefined wavelength  $\lambda_0$ , comprising a semiconductor body ~~[[1]]~~ with an active region ~~[[5]]~~ serving to generate a detector signal and intended to receive radiation, ~~characterized in that~~ wherein said active region ~~[[5]]~~ comprises a plurality of functional layers ~~[[4a, 4b, 4c, 4d]]~~, said functional layers having different band gaps and/or thicknesses and being implemented such that said functional layers at least partially absorb radiation in a wavelength range that includes wavelengths greater than the wavelength  $\lambda_0$ .

2. (Currently Amended) The radiation detector as in claim 1, ~~characterized in that~~ wherein said predefined spectral sensitivity distribution ~~[[9]]~~ is that of the human eye.

3. (Currently Amended) The radiation detector as in claim 1 ~~[[or 2]]~~, ~~characterized in that~~ wherein said semiconductor body ~~[[1]]~~ contains at least one III/V semiconductor material.

4. (Currently Amended) The radiation detector as in ~~one of the preceding claims,~~ claim 1 ~~characterized in that~~ wherein disposed after said active region is a filter layer structure ~~[[70]]~~ comprising at least one filter layer ~~[[7, 7a, 7b, 7c]]~~, which filter layer structure ~~[[70]]~~ determines the short-wave side ~~[[101]]~~ of the detector sensitivity ~~[[10]]~~ in accordance with the predefined spectral sensitivity distribution ~~[[9]]~~ by absorbing radiation in a wavelength range that includes wavelengths smaller than  $\lambda_0$ .

5. (Currently Amended) A radiation detector for detecting radiation in accordance with the predefined spectral sensitivity distribution  $[(9)]$  of the human eye, which exhibits a maximum at the wavelength  $\lambda_0'$ , comprising a semiconductor body  $[(1)]$  with an active region  $[(5)]$  serving to generate a detector signal and intended to receive radiation, ~~characterized in that~~ wherein said semiconductor body  $[(1)]$  contains at least one III/V semiconductor material and said active region  $[(5)]$  comprises a plurality of functional layers.

6. (Currently Amended) The radiation detector as in claim 5, ~~characterized in that~~ wherein said functional layers  $[(4a, 4b, 4c, 4d)]$  at least partially absorb radiation  $[(8)]$  in a wavelength range that includes wavelengths greater than the wavelength  $\lambda_0'$ .

7. (Currently Amended) The radiation detector as in claim 5 ~~[[or 6]]~~, ~~characterized in that~~ wherein said functional layers  $[(4a, 4b, 4c, 4d)]$  have different band gaps and/or thicknesses.

8. (Currently Amended) The radiation detector as in ~~one of claims 5 to 7~~ claim 5, ~~characterized in that~~ wherein disposed after said active region is a filter layer structure  $[(70)]$  comprising at least one filter layer  $[(7, 7a, 7b, 7c)]$ , which filter layer structure  $[(70)]$  determines the short-wave side  $[(101)]$  of the detector sensitivity  $[(10)]$  in accordance with said predefined spectral sensitivity distribution  $[(9)]$  by absorbing radiation in a wavelength range that includes wavelengths smaller than  $\lambda_0'$ .

9. (Currently Amended) A radiation detector for detecting radiation  $[(8)]$  in accordance with a predefined spectral sensitivity distribution  $[(9)]$  that exhibits a maximum at a predefined wavelength  $\lambda_0$ , comprising a semiconductor body  $[(1)]$  with an active region  $[(5)]$  serving to generate detector signals and intended to receive radiation, ~~characterized in that~~ wherein disposed after said active region is a filter layer structure  $[(70)]$  comprising at least one filter layer  $[(7, 7a, 7b, 7c)]$ , which filter layer structure  $[(70)]$  determines the short-wave side

[[101]] of said detector sensitivity [[10]] in accordance with said predefined spectral sensitivity distribution [[9]] by absorbing radiation in a wavelength range that includes wavelengths smaller than  $\lambda_0$ .

10. (Currently Amended) The radiation detector as in claim 9, ~~characterized in that~~ wherein said predefined spectral sensitivity distribution [[9]] is that of the human eye.

11. (Currently Amended) The radiation detector as in claim 9 [[or 10]], ~~characterized in that~~ wherein said semiconductor body [[1]] contains at least one III/V semiconductor material.

12. (Currently Amended) The radiation detector as in ~~one of claims 9 to 11~~ claim 9, ~~characterized in that~~ wherein said active region [[5]] comprises a plurality of functional layers.

13. (Currently Amended) The radiation detector as in claim 12, ~~characterized in that~~ wherein said functional layers [[4a, 4b, 4c, 4d]] at least partially absorb radiation [[8]] in a wavelength range that includes wavelengths greater than the wavelength  $\lambda_0$ .

14. (Currently Amended) The radiation detector as in claim 12 [[or 13]], ~~characterized in that~~ wherein said functional layers [[4a, 4b, 4c, 4d]] have different band gaps and/or thicknesses.

15. (Currently Amended) The radiation detector as in ~~one of the preceding claims~~ claim 1, ~~characterized in that~~ wherein said filter layer structure [[70]] is disposed after said active region [[5]] in the direction of the incident radiation [[8]].

16. (Currently Amended) The radiation detector as in ~~one of the preceding claims~~ claim 1, ~~characterized in that~~ wherein said filter layer structure (70) comprises a single filter layer (7) having a direct band gap and an indirect band gap.

17. (Currently Amended) The radiation detector as in claim 16, ~~characterized in that~~ wherein said direct band gap is larger than the band gap of a functional layer disposed after said filter layer  $[(7)]$  on the side nearer said active region  $[(5)]$ .

18. (Currently Amended) The radiation detector as in ~~either of claims 16 or 17~~ claim 17, ~~characterized in that~~ wherein said filter layer  $[(7)]$  determines the short-wave side of said detector sensitivity by absorbing radiation via said indirect band gap in a wavelength range that includes wavelengths smaller than  $\lambda_0$ .

19. (Currently Amended) The radiation detector as in ~~one of claims 16 to 18~~ claim 16, ~~characterized in that~~ wherein said direct band gap determines a short-wave limit of said detector sensitivity.

20. (Currently Amended) The radiation detector as in ~~one of claims 16 to 19~~ claim 16, ~~characterized in that~~ wherein the thickness of said filter layer  $[(7)]$  is greater than 1  $\mu\text{m}$ , particularly 10  $\mu\text{m}$  or more.

21. (Currently Amended) The radiation detector as in ~~at least one of the preceding claims~~ claim 1, ~~characterized in that~~ wherein said filter layer structure  $[(70)]$  comprises a plurality of filter layers  $[(7a, 7b, 7c)]$  of different band gaps and/or thickness.

22. (Currently Amended) The radiation detector as in claim 21, ~~characterized in that~~ wherein said filter layer structure  $[(70)]$  determines the short-wave side of said detector sensitivity  $[(10)]$  by absorbing radiation via a direct band gap of the respective filter layer  $[(7a, 7b, 7c)]$  in a wavelength range that includes wavelengths smaller than  $\lambda_0$ .

23. (Currently Amended) The radiation detector as in claim 21  $[(\text{or } 22)]$ , ~~characterized in that~~ wherein said filter layer structure  $[(70)]$  has a thickness of 1  $\mu\text{m}$  or less.

24. (Currently Amended) The radiation detector as in ~~at least one of the preceding~~ claims claim 1, characterized in that wherein said functional layers  $[(4a, 4b, 4c, 4d)]$  determine by their implementation the long-wave side  $[(102)]$  of said detector sensitivity  $[(10)]$  in accordance with said predefined spectral sensitivity distribution  $[(9)]$  for wavelengths greater than  $\lambda_0$ .

25. (Currently Amended) The radiation detector as in ~~at least one of the preceding~~ claims claim 1, characterized in that wherein the respective band gaps of functional layers  $[(4a, 4b, 4c, 4d)]$  disposed one after the other in said semiconductor body  $[(1)]$  at least partially increase in the direction of the incident radiation  $[(8)]$ .

26. (Currently Amended) The radiation detector as in ~~at least one of the preceding~~ claims claim 1, characterized in that wherein said functional layers  $[(4a, 4b, 4c, 4d)]$  or at least a portion of said functional layers are substantially undoped.

27. (Currently Amended) The radiation detector as in ~~at least one of the preceding~~ claims claim 1, characterized in that wherein said active region  $[(5)]$  comprises at least one heterostructure.

28. (Currently Amended) The radiation detector as in ~~at least one of the preceding~~ claims claim 1, characterized in that wherein said active region  $[(5)]$ , particularly the functional layers, or said filter layer structure  $[(70)]$  contains at least one III/V semiconductor material, preferably  $\text{In}_x\text{Ga}_y\text{Al}_{1-x-y}\text{P}$ ,  $\text{In}_x\text{Ga}_y\text{Al}_{1-x-y}\text{As}$  or  $\text{In}_x\text{Ga}_y\text{Al}_{1-x-y}\text{N}$ , where in each case  $0 \leq x \leq 1$ ,  $0 \leq y \leq 1$  and  $x + y \leq 1$ .

29. (Currently Amended) The radiation detector as in ~~at least one of the preceding~~ claims claim 1, characterized in that wherein said semiconductor body  $[(1)]$  particularly the semiconductor body comprising said filter layer structure  $[(70)]$ , is monolithically integrated.